

REMARKS/DISCUSSION OF ISSUES

By this Amendment, Applicants cancel claims 9-11 without disclaimer of the underlying subject matter, or prejudice against subsequent prosecution. Applicants also amend claims 6 and 7, and add new claims 12-21. Claim 6 is amended to be in independent form without any change in scope. Accordingly, claims 1-8 and 12-21 remain pending in the application.

Applicants thank the Examiner for acknowledging the claim for priority and receipt of certified copies of all the priority documents, and that the drawings are accepted.

Reexamination and reconsideration are respectfully requested in view of the following Remarks.

35 U.S.C. § 103

The Office Action rejects claims 1 and 5-8 under 35 U.S.C. § 103 over Goodwin-Johnson U.S. Patent 6,236,491 ("Goodwin-Johnson"), and rejects claims 2-4 under 35 U.S.C. § 103 over Goodwin-Johnson in view of Chartoff et al. U.S. Patent 6,423,260 ("Chartoff").

Applicants respectfully traverse these rejections for at least the following reasons.

Claim 1

Among other things, in the structure of claim 1 the two layers of material have different thermal expansion coefficients in a first direction and a second direction respectively.

The Office Action states that Goodwin-Johnson discloses this feature at col. 7, lines 7-31.

Applicants respectfully disagree.

Goodwin-Johnson discloses at col. 7, lines 7-31 a structure having two materials (e.g., a polymer and an electrode layer) that have different thermal expansion coefficients than each other. Applicants respectfully submit that cited text does not state that the two layers of material have different thermal expansion

coefficients **in a first direction and a second direction** respectively.

The Office Action does not explain why it would have been obvious to anyone of ordinary skill in the art at the time the invention was made to have modified Goodwin-Johnson's structure to include such a feature.

So Applicants respectfully submit that the structure of claim 1 is patentable over Goodwin-Johnson.

Also among other things, in the structure of claim 1: (1) the first direction is transverse to the second direction;; (2) the two layers comprise an oriented polymer; and (3) the director of the molecules of the oriented polymer of the first layer is transverse to the director of the molecules of the oriented polymer of the second layer.

The Office Action fairly admits that Goodwin-Johnson does not disclose any of these three features.

However, the Office Action states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Goodwin-Johnson's structure to include all of these features *"since Goodwin-Johnson discloses that when a temperature change in the layers of material with different thermal expansion coefficients of the micro-mechanical thermal structure causes them to bend."*

Applicants respectfully traverse the proposed modifications of Goodwin-Johnson for at least the following reasons.

A rejection on obviousness grounds under 35 U.S.C. § 103 cannot be sustained by mere conclusory statements: instead there must be some articulated reasoning **with some rational underpinning** to support the legal conclusion of obviousness. See M.P.E.P. § 2142 (quoting In re Kahn, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) and KSR 82 USPQ2d at 1396 (2007) (quoting Federal Circuit statement with approval)).

Here, the rejection is supported only by conclusory statements. The Office Action fails to articulate reasons with rational underpinnings for the proposed modifications. In particular, the Office Action fails to explain why the disclosure of

Goodwin-Johnson "that when a temperature change in the layers of material with different thermal expansion coefficients of the micro-mechanical thermal structure causes them to bend" would have made it obvious to one of ordinary skill in the art at the time the invention was made to have modified Goodwin-Johnson's structure such that: (1) the first direction is transverse to the second direction; (2) the two layers comprise an oriented polymer; and (3) the director of the molecules of the oriented polymer of the first layer is transverse to the director of the molecules of the oriented polymer of the second layer.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 1 is patentable over Goodwin-Johnson.

Claims 3-5

Claims 3-5 depend from claim 1 and are deemed patentable for at least the reasons as set forth above with respect to claim 1.

Claim 6

Among other things, the thermo-optical modulator comprises a plurality of micro-mechanical thermal structures ordered on a substrate. Each micro-mechanical thermal structure comprises two layers of material with different thermal expansion coefficients in a first direction and a second direction respectively, the first direction being transverse to the second direction and the two layers comprising an oriented polymer, wherein the director of the molecules of the oriented polymer of the first layer is transverse to the director of the molecules of the oriented polymer of the second layer.

As explained above with respect to claim 1, Applicants respectfully submit that Goodwin-Johnson does not disclose or suggest the micro-mechanical thermal structure of claim 6.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 6 is patentable over Goodwin-Johnson.

Claims 7-8

Claims 7-8 depend from claim 6 and are deemed patentable for at least the reasons as set forth above with respect to claim 6.

Claims 2-4

Claims 2-4 depend from claim 1. Chartoff does not remedy the shortcomings of Goodwin-Johnson as set forth above with respect to claim 1. Therefore, claims 2-4 are deemed patentable over the cited art for at least the reasons set forth above with respect to claim 1.

NEW CLAIMS 12-21

New claims 12-21 depend variously from claims 1 and 6 and are deemed patentable for at least the reasons set forth above with respect to claims 1 and 6 set forth above, and for the additional novel features recited therein.

CONCLUSION

In view of the foregoing explanations, Applicants respectfully request that the Examiner reconsider and reexamine the present application, allow claims 1-8 and 12-21 and pass the application to issue. In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact Kenneth D. Springer (Reg. No. 39,843) at (571) 283.0720 to discuss these matters.

Respectfully submitted,

VOLENTINE & WHITT

By: 

Kenneth D. Springer
Registration No. 39,843

VOLENTINE & WHITT
One Freedom Square
11951 Freedom Drive, Suite 1260
Reston, Virginia 20190
Telephone No.: (571) 283.0724
Facsimile No.: (571) 283.0740